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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,015	08/27/2001	Bala Subramaniam	318888	3706

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EXAMINER

DANG, THUAN D

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/940,015

Applicant(s)

SUBRAMANIAM ET AL.

Examiner

Thuan D. Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 10, 12-20, 26, 28-31 and 48-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-20, 26, 28-31 and 48-50 is/are allowed.
- 6) ☒ Claim(s) 1-4, 10 and 12-15, 51, and 52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 51 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding claim 51, the term “feed mixture” does not have support from the specification (see entire patent for details), namely a condition “a temperature of from about 0.9-1.3 T_c of the feed mixture” and “a pressure of from about 0.9-2.5 P_c of the feed mixture”. Instead, the specification supports only reactants and the condition of reactants. Note that a feed includes everything fed into the reactor including not only reactants but also anything else.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 4, and 10, 12, 51, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subramaniam et al (5,907,075).

Subramaniam discloses an alkylation process in the presence of a solid catalyst having a surface area of from 5-1000 m²/g under supercritical conditions at a temperature of from about 0.9-1.3 Tc.

Subramaniam is silent as to the pore size of the catalyst (see the entire patent for details). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Subramaniam process by selecting an appropriate pore

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size for the catalyst since it is expected that the Subramaniam catalyst having any pore size would yield similar results.

The examiner notes that at the first time when the reactants are fed to the reactor, the reaction mixture is the reactant mixture since at that time, the product is not produced yet.

Subramaniam does not disclose employing a pressure as called for in claims 11 and 12. However, Subramaniam discloses that the pressure exceeds the critical pressure (col. 2, lines 13-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Subramaniam process by selecting a pressure higher than the critical pressure to arrive at the applicants' claimed pressure.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Subramaniam et al (5,907,075) in view of McClure et al (4,056,578).

Subramaniam discloses a process as discussed above.

Subramaniam does not disclose using a catalyst as called for in claim 3. However, McClure discloses a similar catalyst for alkylation of paraffins with olefins (the abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Subramaniam process by employing the McClure catalyst since the McClure's catalyst is superior to other solid catalysts (col. 5, lines 20-27).

Response to Arguments

The argument that the present claims have been amended to recite that the reaction mixture comprises the reaction mixture and reaction products, such a recitation clarifies that the reactant mixture and the reaction products are two different mixtures is not persuasive since applicants do not recite when (starting the process at which there is the presence of only reactants or during the process at which the product have been produced) the condition of temperature and pressure is referred to (see claims). Therefore, the reaction mixture disclosed by the prior art is not different from the reactant recited in the claim (if the time the condition being taken is not specified).

The argument that as declared by Dr. Subramaniam if the **alkylation** process keeps temperatures in supercritical range relative to the reactant mixture as claimed instead of the reaction mixture, the desired separation of the C8 alkylation products occurs and the heavier products collect in the macropores of the catalyst is not persuasive since the declaration is applied to only alkylation not the presently claimed process which is not an alkylation process (see claim 1-4, 10, 12, and 51). Regarding claim 52, the condition recited in the claim may not be a supercritical condition such as in the case that the temperature is $0.9 T_c$ and the pressure is $0.9 P_c$.

Allowable Subject Matter

Claims 16-20, 26, 28-31, 48-50 allowed.

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Claims 13-15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 571-272-1445. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thuan D. Dang
Primary Examiner
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A handwritten signature in black ink, appearing to read 'Thuan D. Dang', is written over the printed name and title.